

Prevention of Global Warming

Web page http://www.cosmo-oil.co.jp/eng/sustainable/06/env/gl_warming.html

We are taking on various initiatives to prevent global warming by promoting energy conservation at all stages of our business.

Policy on activities

The Cosmo Oil Group, which produces and sells petroleum products, is responsible for addressing global warming. Our refineries, which emit more than 60 percent of the total amount of CO₂ emitted by the Cosmo Oil Group, are taking on energy conservation initiatives in order to attain the target of reducing unit energy consumption by 15% by FY2010 from the FY1990 level. Meanwhile, the logistics department is devising an efficient delivery method and the service stations have introduced solar cell panels to promote energy conservation. In addition, we are going to use the Kyoto Mechanisms to take the efficient measures against global warming problems. Along with these activities, we are making a strong effort on environmental contribution activities beyond corporate boundaries to aim for the prevention of global warming (see page 28).

Activities at refineries

Our oil refineries are making efforts to save energy by introducing high-efficiency equipment and improving the operation control.

In FY2005, we introduced high-efficiency equipment, such as inverter-controlled motors and automatic capacity control for compressors. In addition, we reduced fuel and steam consumption by optimizing the operation of furnaces and strictly controlling the volume of steam necessary to refine crude oil and semi-products and to heat oil in tanks.

These activities attained the unit energy consumption*¹ of 8.96 kl-crude/1,000 kl in FY 2005— 13.5% cut from the FY1990 level. This result exceeds the target (10% cut from the FY1990 level by FY2010) set by the Petroleum Association of Japan.

*¹ Unit Energy Consumption: This is expressed as the total energy consumption divided by crude equivalent throughput taking into account the complexity of refining techniques. The unit is kl-crude/1,000 kl. Note that since the total energy consumption is converted to the corresponding amount of crude, the unit is kl-crude.

Kyoto Mechanisms

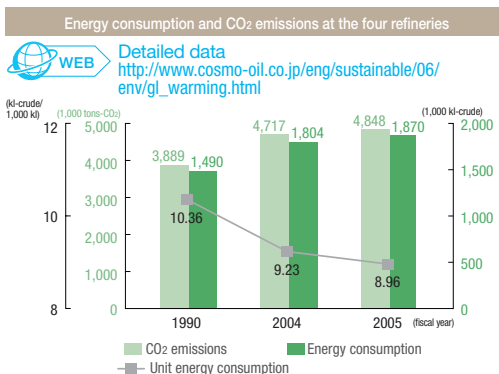
Emission trading for greenhouse gases which is represented by Kyoto Mechanism is the framework for addressing the global warming problem efficiently and effectively on the basis of international cooperation. To reduce the greenhouse gases, the Cosmo Oil Group participated in GG-CAP*¹—a mechanism for acquiring carbon credits of 1 million tons of CO₂ arising from CDM*²/JI *³projects, using the first private scheme for buying carbon credits set up by Natsource.

- *¹ GG-CAP: Scheme for acquiring emission credit operated by a subsidiary of Natsource, an organization specialized in emissions trading.
- *² CDM (Clean Development Mechanism): One of the Kyoto Mechanisms that allows industrialized countries to generate emission credits through investment in emission reductions projects in developing countries.
- *³ JI (Joint Implementation): One of the Kyoto Mechanisms that allows developed countries to invest in other developed countries to earn carbon allowances which they can use to meet their emission reduction commitments.

Activities at the service stations

One of solutions for realizing service stations that are more environmentally-benign is to install solar cell panels. Currently, 37 service stations use solar energy.

▼ Graph 1



Initiatives in logistics

The Cosmo Oil Group has long been pursuing energy conservation by improving efficiency in logistics. Since FY2006, the Law Concerning the Rational Use of Energy was amended to define owner's liability clearly. We will continue to pursue energy conservation without hampering the safety and reliability of transportation.

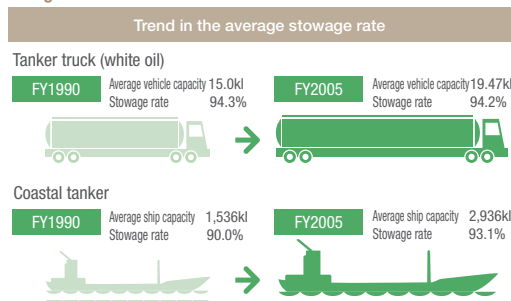
Land transportation: Tanker trucks

Employing large trucks and maintaining a high stowage rate resulted in 30% rise from the FY1990 level of transportation volume per vehicle. For further energy conservation, we will promote efficiency while mainly focusing on planning delivery and independent delivery.

Domestic marine transportation: coastal tankers

Coastal tankers used to deliver our products and semi-products between our sites are affected by the running status of refineries, and by weather conditions. In order to prevent marine accidents, to reduce impacts on the environment, and to reduce energy consumption, we will continue to employ large tankers and maintain a high stowage rate.

▼ Figure 4



C O L U M N

Preventing impacts associated with crude oil transportation on the marine environment

Ballast water

In navigating without load from oil-consuming countries to oil-producing countries, crude tankers hold seawater inside as a ballast to make the body stable, and discharge it before crude oil is loaded. To protect the coastal ecosystem of oil-producing countries from pollution, we discharge the ballast water off the coast according to their regulations and requirements.

Double-hull structure

The Cosmo Oil Group employs 10 VLCCs (Very Large Crude Carriers) with double-hull structure under a long-term charter, as protection against accidents. These tankers have the double hull structure having inner and outer hulls, which prevents the inner crude tank from being damaged should the ship body be breached and prevent oil leaks.



Trend in double-hull tankers regularly chartered (ratio)
http://www.cosmo-oil.co.jp/eng/sustainable/06/env/gl_warming.html

Environmental measures at service stations

Introducing hydrocarbon vapor recovery unit

Hydrocarbon vapor is vaporised during unloading from a tanker truck. To prevent it from being diffused, we promote the installation of hydrocarbon vapor recovery units.

▼ Figure 5

